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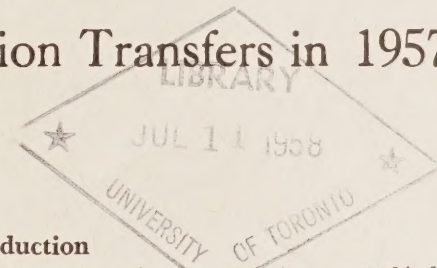
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Epidemic Oyster Disease and Rehabilitation Transfers in 1957



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Epidemic oyster disease has been discussed in two earlier circulars in this series. Circular 28 described the progress of epidemic oyster disease in New Brunswick and Nova Scotia to the end of 1956. It also recommended measures for restoring devastated oyster populations. Circular 29 outlined the Department of Fisheries' proposal to carry out the recommendations by transferring disease-resistant Prince Edward Island oysters to affected areas in 1957, 1958 and 1959. The present circular is a further report on epidemics and also describes rehabilitation transfers carried out in 1957. It is available in both English and French versions.

Established Epidemics in New Brunswick and Nova Scotia

Deaths continued in all epidemics previously reported, but they decreased in all but the Neguac outbreak. This epidemic started a year later than most and reached its peak this year. Mortalities to the end of 1957 were as follows:

Shippegan, N. B.	97.8%
North Shore, Miramichi Bay, N.B. (Neguac)	92.5%
South Shore, Miramichi Bay, N.B. (Hardwicke)	98.2%
Richibucto River, N. B.	99.0%
Malagash, N. S.	97.1%

By comparing losses in successive years in various areas it appears that an epidemic:

- (1) reaches its peak in its third year;
- (2) takes six years to run its course;
- (3) and (when it has run its course) kills 99% of the stock.

This means that only 1% of the original native population is left in each stricken area to rebuild stocks. Experience in Malpeque Bay, P. E. I. (1915-35) indicates that rebuilding takes not less than twenty years unless special efforts are made at rehabilitation.

New Epidemics

In 1957 the Department of Fisheries confirmed that oyster disease had devastated the Merigomish-Pictou region. Deaths probably commenced in 1955 so this can hardly be called a new epidemic, but it is reported as such because we became sure of its existence only in 1957.

In contrast, a really new epidemic struck Caraquet Bay in 1957. The first deaths were observed on leaseholds and experimental plots in mid-summer of 1957. By November, 75% of the oysters in these areas were dead. Few oysters died on the public fishing grounds and a recent reduction of the minimum legal size limit enabled fishermen to harvest 4,644 barrels there in 1957. We believe most of these would have died by the 1958 fishing season if they had been left on the beds. The whole Bay seems to be doomed.

Effect on Production

Since the disease struck, there has been a 70% drop in oyster production from New Brunswick and Nova Scotia. In 1957 only 9,000 barrels were fished. However, more than half of this was from the Caraquet public fishery, which cannot be expected to continue. The best we can hope for from New Brunswick and Nova Scotia combined in 1958 is 4,400 barrels. Prince Edward Island should continue to produce about 10,000 barrels annually.

Resistance Experiments

In 1956 small lots of Prince Edward Island oysters were transferred to Shippegan and Richibucto, N. B. and Malagash, N. S. as described in Circular 28. We wanted to know if they would survive and reproduce in these disease-affected areas and thus be useful in hastening recovery of mainland populations. By the end of 1956, 1% of the transferred animals had died. By the end of 1957, losses had risen to:

Shippegan	19%
Richibucto	16%
Malagash	12%

If they had been susceptible we would have expected that 50-60% of them would be dead now after two years' exposure in diseased areas. It seems obvious that Prince Edward Island oysters are resistant to the mainland disease and can be used for rehabilitation transfers.

Similar small-scale resistance experiments were commenced in Miramichi Bay in 1957 and showed mortalities of 1.5% by the end of the year. This is encouraging but we cannot be sure the oysters are resistant until 1958 figures are available.

Rehabilitation Transfers in 1957

In the spring of 1957 the Department of Fisheries made its first mass transfers of Prince Edward Island oysters — 1,000 barrels to the Shippegan, N. B. area and 500 barrels to the Wallace-Malagash, N. S. district. Mortality to the end of 1957 was 2% in Shippegan and 6% in Wallace-Malagash. Considering the inevitable rough treatment involved in transplanting, these losses are astonishingly low. We cannot be sure that these animals are disease-resistant but results of the 1956 resistance experiment give us good reason to think that they are.

The Prince Edward Island oysters transferred to Malagash in 1957 spawned and a few spat were caught. These will be studied for disease resistance. The Shippegan lot did not spawn but spawning failures are common in that area in cold summers and the 1957 summer was cold throughout the Maritimes.

Rehabilitation Transfers in 1958

The results of resistance experiments are so encouraging that the Department of Fisheries has increased its planned transfers in 1958 from 3,500 barrels as described in Circular 29 to 4,500 barrels. These will go to Shippegan, Miramichi Bay and Kent County, N. B. and the Merigomish-Pictou district of Nova Scotia.

Prospects for Recovery of Mainland Fisheries

By the end of 1959 most epidemics should have

nearly run their course and all important diseased areas will have been planted with disease-resistant Prince Edward Island brood stock. These plantings have been dense enough to encourage vigorous spawning. If spatfall in all areas begins as soon after planting as it did in Malagash, we may expect a great reduction in the recovery period as compared with that in Malpeque Bay where no rehabilitation effort was possible. Early restoration of the commercial fisheries is promising if the oysters encounter favourable years for reproduction. We estimate that with luck most fisheries should be producing again in 1965.